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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/728,759

12/08/2003

Naoki Matsuda

0425-1097P

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08/14/2006

BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER

GOODEN JR, BARRY J

ART UNIT

PAPER NUMBER

3616

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                 |                                |  |
|------------------------------|---------------------------------|--------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/728,759   | Applicant(s)<br>MATSUDA ET AL. |  |
|                              | Examiner<br>Barry J. Gooden Jr. | Art Unit<br>3616               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2006 (Amendment).  
 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-13 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-5 and 7-13 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 14 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This office action is in response to the amendment filed 6/14/2006. Currently claims 1-5 and 7-13 are pending; Claims 1-5 and 7-9 are amended; Claim 6 is cancelled; Claim 10 is original; and, Claims 11-13 are new.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 12b and 13b. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claims 11-13, "the volume ratio of the first combustion chamber and the second combustion chamber is adjusted" is unclear. The claim language provided appears to suggest an active adjusting process. Examiner suggests replacing "is adjusted" with -- is adjusted by varying the thickness or diameter of the partition wall --.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The applied reference (Nakashima et al., US Patent 6,364,354 B1) has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

8. Claims 1-3, 5, and 8-13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakashima et al., US Patent 6,364,354 B1.

In regards to claims 1-3, Nakashima et al. shows a gas generator for an air bag comprising:  
a housing (3) having a gas discharge port (26);

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first (12a) and second (12b) ignition means activated by an impact;

first and second (5a,5b, respectively) combustion chambers accommodating therein gas generating agents (9a,9b, respectively) which are ignited and burnt to generate a combustion gas;

a cylindrical partition wall that separates the first combustion chamber (5a) and the second (5b) combustion chamber from each other, the cylindrical partition wall having a communication hole that allows communication between the first combustion chamber and the second combustion chamber; and,

wherein a volume ratio of the first combustion chamber and the second combustion chamber is adjusted by varying an inner diameter of the cylindrical partition wall;

the cylindrical partition wall is an inner cylinder (4) disposed in the housing (3), a first combustion chamber (5a), being annular in shape, is provided outside the inner cylinder (4), and the two ignition means (1a,12b) are provided at a lower side in the inner cylinder (4), and a second combustion chamber being provided at an upper side in the inner cylinder (4)(See Figure 16); and,

wherein a diameter of the inner cylinder (304) disposed in the housing (3) varies at a vertical position in an axial direction of the housing (3) (See Figure 19).

In regards to claim 5 and 8, Nakashima et al. shows a gas generator for an air bag comprising:

a housing (3) having a gas discharge port (26);

first and second ignition means (12a,12b) activated by an impact;

first and second combustion chambers (5a,5b) accommodating therein gas generating agents (9a,9b) which are ignited and burnt to generate a combustion gas;

a separating means that separates a first combustion chamber and a second combustion chamber from each other, the separating means having a communication hole;

wherein a second combustion chamber (5b) is surrounded by a first combustion chamber (5a);  
and,

wherein a flammability of the gas generating agents in the second combustion chamber (5b) is adjusted by varying the diameter of the communication hole (10) (column 9, lines 16-46);

wherein the housing is provided with two or more gas discharge ports (26a,26b), the gas discharge ports are closed with shielding members (27) before the gas generator is activated, and the

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shielding members (27) are ruptured in two or more stages (column 36, lines 4-7) after the gas generator is activated.

In regards to claim 9, Nakashima et al. shows a gas generator for an air bag comprising:

a housing (3) having a gas discharge port (26);

first and second ignition means (12a,12b) activated by an impact;

first and second combustion chambers (5a,5b) accommodating therein gas generating agents (9a,9b) which are ignited and burnt to generate a combustion gas; and,

a partition wall that separates the first combustion chamber (5a) and the second combustion chamber (5b) from each other, the first combustion chamber (5a) and the second combustion chamber (5b) being brought into communication with each other only through a communication hole (10) formed in the partition wall (7);

wherein a combustion gas generated in the second combustion chamber (5b) flows into the first combustion chamber (5a) through the communication hole (10), and then, is discharged from the gas discharge port (26);

a volume ratio of the first combustion chamber and the second combustion chamber is adjusted by varying the diameter of the partition wall; and,

a combustion state of a gas generating agent (9b) in the second combustion chamber (5b) is controlled by varying the diameter of the communication hole (10) (column 9, lines 16-46).

In regards to claims 1, 5, and 9, Nakashima et al. discloses the claimed invention except for the retainer being located within the second combustion chamber. It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the sealing tape within the second combustion chamber, since it has been held that rearranging parts of an invention involves only routine skill in the art.

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In regards to claims 11-13, Nakashima et al. discloses the claimed invention except for the volume ratios of the second combustion chamber and the first combustion chamber being adjusted from 1:1 to 9:1 or from 3:2 to 8:2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the volume ratio of the second combustion chamber relative to the first combustion chamber, so as to provide optimum operating combustion pressures, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

In regards to claim 10, Nakashima et al. discloses the claimed invention except for the combustion temperature of the gas generating agent being from 1000 to 1700°C. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a gas generating agent with a combustion temperature, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In addition, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakashima et al. in view of DiGiacomo et al., US Patent 6,447,007 B1.

In regards to claim 4, Nakashima et al. show all of the claimed elements excluding the inner cylinder having an upper portion with a diameter greater than the lower portion.

DiGiacomo et al. teach an inner cylinder (16) disposed in a housing (12) having an upper portion with a diameter greater than a lower portion of the inner cylinder (16) (See Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the inner cylinder of Nakashima et al. in view of the teachings of DiGiacomo et al. to include an upper portion having a diameter greater than the lower portion so as to increase the volume of

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the inner cylinder in a cost-effective and lightweight manner without increasing the overall size of the inflator (column 2, lines 9-19).

10. Claim 7, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakashima et al. in view of Fukuma et al., US Patent 3,950,263.

In regards to claim 7, Nakashima et al. show all of the claimed elements excluding the retainer being a wire mesh.

Fukuma et al. teach of a retainer being made of a wire mesh.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the retainer of Nakashima et al. in view of the teachings of Fukuma et al. to include being made of mesh so as to provide a securing means that also acts as a filtering means which would, to an extent, cool the gas.

In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a wire mesh retainer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

#### ***Response to Arguments***

11. Applicant's arguments filed 6/14/2006 have been fully considered but they are not persuasive.

With respect to the applicant's arguments found on pages 10 and 11 of the remarks, examiner maintains, as broadly recited, the sealing tape of Nakashima et al. meets the limitations of "a retainer...forming a gap between the retainer and the communication hole such that the gas generating agents accommodated in the second combustion chamber do not block the communication hole".



**Conclusion**


12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

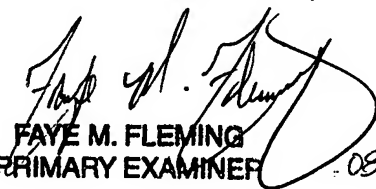
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry J. Gooden Jr. whose telephone number is (571) 272-5135. The examiner can normally be reached on Monday-Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul N. Dickson can be reached on (571) 272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 8/9/06  
Barry J Gooden Jr.  
Examiner  
Art Unit 3616

BJG

  
FAYE M. FLEMING  
PRIMARY EXAMINER 08/10/06